

REMARKS

Restriction

Applicants affirm the election without traverse to prosecute the invention of Group I, claims 1-10 and 15.

37 CFR 1.75(c)

Claim 15 is objected to under 37 CFR 1.75 (c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. The cancellation of claim 15 renders this objection moot.

35 U.S.C. §112, second paragraph

Claims 1-10 and 15 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Numerous rejections in regards to claim language and substance have been raised. Where necessary the claims have been amended to remove the rejections or have been addressed below:

It is asked in which step is the viscosity of the elastomer maintained at the recited values. The claim has been amended to recite that the viscosity is maintained within the recited range as the elastomer enters the gate. This corresponds to the teachings set forth in page 4, line 34 – page 5, line 1.

The clamping force of claim 4 is questioned. The clamping force is applied by the pneumatic arm against the die. The pneumatic arm is not part of the actual molds, but is part of the molding mechanism.

Claim 7 is questioned in regards to what is being clamped to what. The clamping pressure is the pressure maintained on the expanding die of claim 6.

35 U.S.C. § 103

Claims 15 has been rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chang et al (WO 98/13185).

Due to cancellation of claim 15, this rejection is now moot.

Claims 1-10 and 15 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al in view of Gorter et al (US 4,014,969) and Goettler et al. (US 4,056,591) and optionally at least one of Japan '924 (JP 1-304924) and Itoh et al (US 5,702,546).

Chang et al is relied upon as teaching a method for forming a fiber reinforced elastomeric composite article wherein the orientation of the fibers within the elastomer is achieved by directing the elastomer into a mold cavity wherein the elastomer forms a series of folding planes.

The claims are held obvious as it would be obvious to optimize the process of Chang as Chang teaches "that parameters that effect fiber orientation include gate dimensions, offset distance, molding temperature, etc." Chang does go into lengthy discussions regarding the gate dimensions, providing examples of different gate dimensions to achieve the desired orientation of the fiber within the compound; however, Chang fails to discuss or appreciate the affect of viscosity and speed on the elastomer.

As discussed in the present specification, variation in the viscosity affects the resulting desired orientation of the fibers, even when the fiber reinforced elastomer is processed to achieve the folded ribbons. A very viscous elastomer will not move readily through the gate and can prevent re-orientation of the fibers within the elastomer as the elastomer travels through the gate. A very low viscous elastomer will move too fast through the gate, creating eddies in the elastomer, negatively impacting a preferred single orientation of the fiber within the elastomer.

Just as the viscosity of the elastomer affects the fiber orientation, so the elastomeric processing speed affects the fiber orientation. If the processing speed is too high, eddies may be created within the fluid flow, disturbing the desired fiber orientation. If the processing speed is too low, than the elastomer may "linger" along the old walls, preventing complete orientation of the fiber and cool spots in the elastomer, resulting in inadequate molding of the components.

Gorter discloses that the processing viscosity affects the degree of complete orientation of the stable fibers in a flowing elastomer (col 3, lines 6-11), and that the fiber orientation is dependent upon the processing speed of the fiber reinforced elastomer (col 9, lines 3-7). However, Gorter never discloses any viscosity values or processing speeds, thus one skilled in the art would be required to perform numerous experiments to determine the viscosity and speed ranges that would yield the desired fiber orientation. In applying such teachings of Gorter to the teachings of Chang, one skilled in the art would be provided with

more parameters that should be determined and would still be left to guess and perform much experimentation to obtain a high degree of fiber orientation as disclosed by Chang.

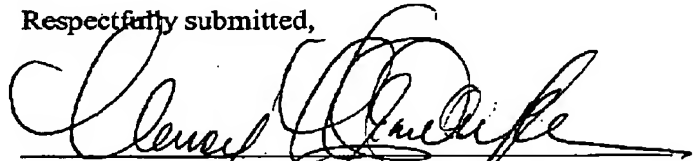
Goettler discloses a method for forming a hose. The fiber reinforced elastomer passes through an expansion area, wherein the flow of the elastomer is stable (col 7, lines 1-12). In one example, Goettler discloses extrudant flow rates at the barrel of 5-10 feet/min, corresponding to a feed rate of 400-500 grams/minutes. This is equivalent to a flow rate of 25.4 to 50.8 mm/sec. Other feed rates, in combination with the screw speeds, suggest a similar flow rate at the gate for the extrudants of Goettler.

Employing the teachings of Goettler with the teachings of Chang as set forth in the present Office Action still do not result in Applicants claim. In fact, using such suggested flow rates will result in much undue experimentation.

One skilled in the art may appreciate that the results of every elastomeric mixing and extruding process is depending upon the operating conditions, and that the operating conditions can be varied widely. Herein the present application, Applicants have found operating conditions that yield a highly oriented fiber reinforced component. To assert that it would have been obvious to pick these operating conditions by using the general teachings of Gorter and Goettler is akin to finding the needle in the haystack during the first search of the haystack.

It is respectfully requested that the rejection be reconsidered and withdrawn. In light of this amendment, all of the claims now pending in the subject patent application are allowable. Thus, the Examiner is respectfully requested to allow all pending claims.

Respectfully submitted,



Nancy T. Krawczyk - Reg. No. 38,744
Attorney for Applicants

The Goodyear Tire & Rubber Company
Department 823
1144 East Market Street
Akron, Ohio 44316-0001
Telephone: (330) 796-6366
Facsimile: (330) 796-9018